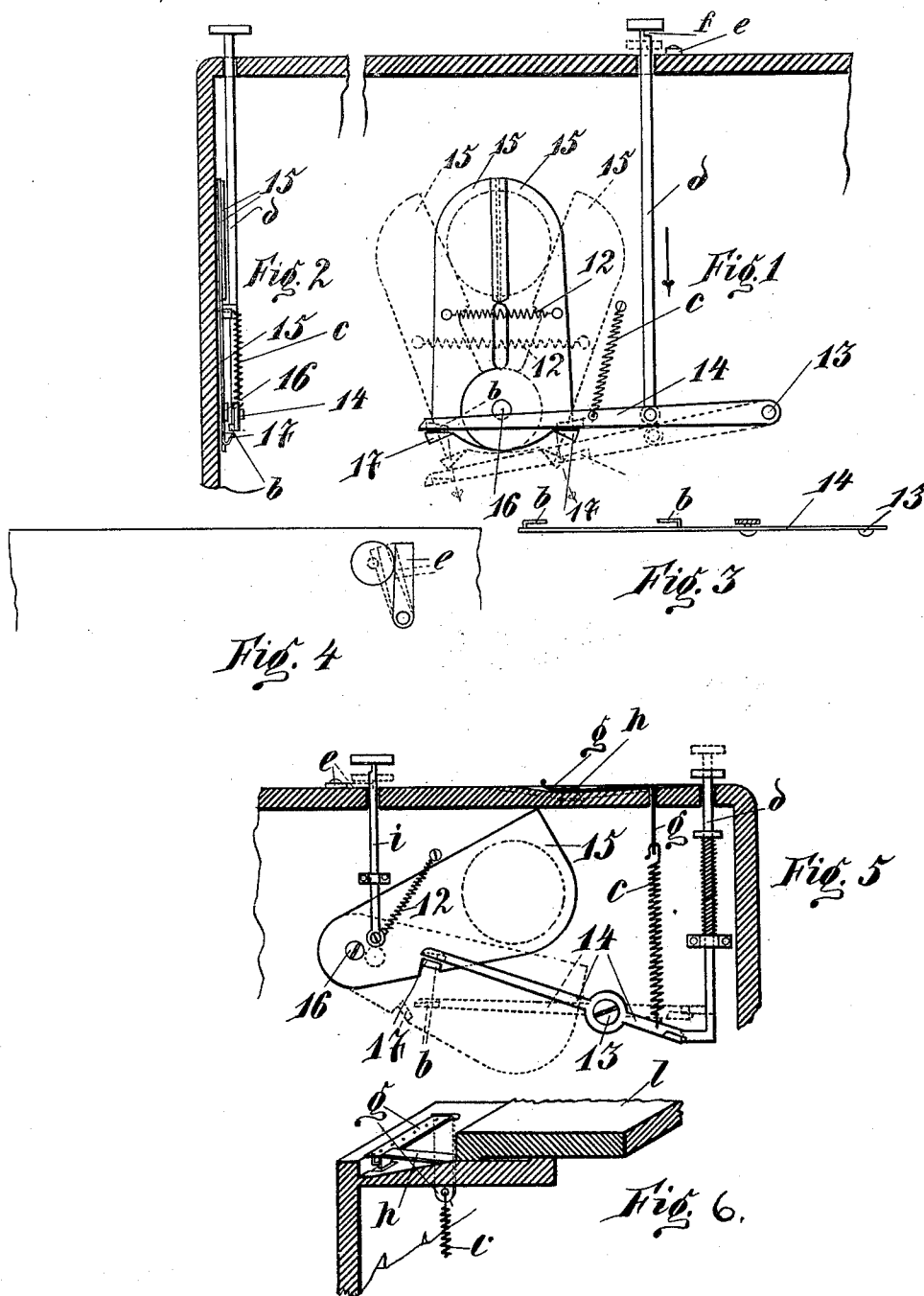


A. DELUG.
CAMERA.

No. 529,369.

Patented Nov. 20, 1894.



Attest:

A. J. Birney
J. H. Schott

Inventor:

Alois Delug
by Max Engel
Attorney.

(No Model.)

2 Sheets—Sheet 2.

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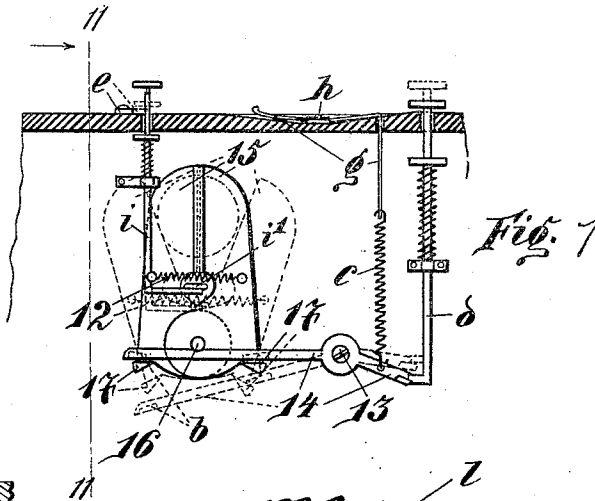


Fig. 7

Fig. 12.

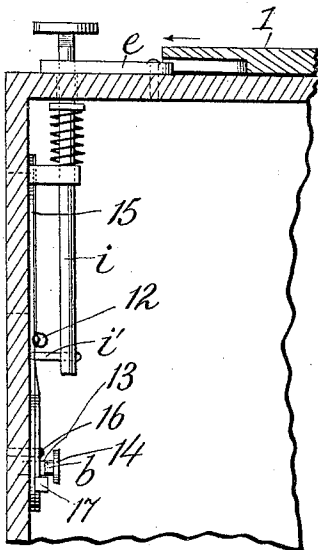
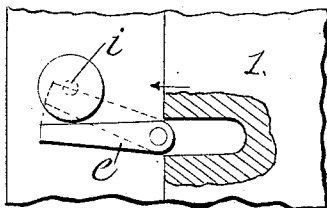


Fig. 13.



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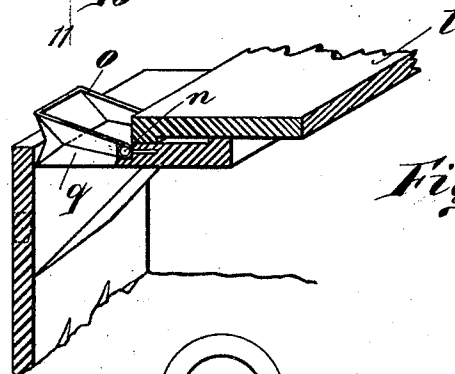


Fig. 11

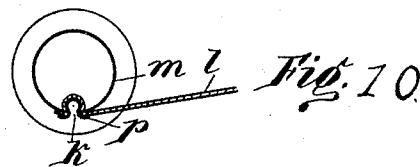


Fig. 10

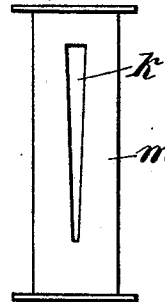


Fig. 8.



Fig. 9.

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UNITED STATES PATENT OFFICE.

ALOIS DELUG, OF MUNICH, GERMANY.

CAMERA.

SPECIFICATION forming part of Letters Patent No. 529,369, dated November 20, 1894.

Application filed February 20, 1894. Serial No. 500,892. (No model.)

To all whom it may concern:

Be it known that I, ALOIS DELUG, a citizen of the German Empire, residing at Munich, Bavaria, Germany, have invented certain new and useful Improvements in Cameras, of which the following is a specification.

My invention relates to improvements in cameras.

The object of my invention is to produce a shutter mechanism specially adapted for use in hand cameras.

Another object of my invention is to provide an improved film roller to which the end of the film may be readily secured.

A further object of my invention is to produce an automatically upward-swinging shade or screen.

With these objects in view, my invention consists in the features, details of construction and combination of parts which will first be described in connection with the accompanying drawings and then particularly pointed out in the claims.

In the drawings—Figure 1 is an elevation of one form of shutter embodying my invention. Fig. 2 is a detail side elevation, partly in section, of the same. Fig. 3 is a detail view of the lever, 14. Fig. 4 is a detail plan of the rod fastening device. Fig. 5 is an elevation of a modified form of shutter embodying my invention. Fig. 6 is a detail view of the strap-releasing device. Fig. 7 is an elevation of another modification of shutter. Fig. 8 is a plan view of a film roller embodying part of my invention. Fig. 9 is a detail perspective view of a key employed in connection with said film roller. Fig. 10 is a transverse sectional view of the film roller with the key in position. Fig. 11 is a detail view of the finder shade or screen. Fig. 12 is a side elevation, partly in section, of the device shown in Fig. 6, the section being taken on line 11—11, Fig. 7, and looking in the direction of the arrow. Fig. 13 is a detail plan view of the catch-releasing device.

Referring to the drawings, it will be seen that the shutter consists, according to Fig. 1, of two slides, 15, made of sheet-metal or the like, which are pivoted at the point, 16, and are extended on their outer sides sufficiently far below the pivot-point so that they form double levers as it were. These lateral extensions have the form of acute angles and

are outwardly bent up to form the projections or lugs, 17. The two slides, 15, are held in a closed position by a spring, 12, below the objective. The opening of these slides is effected by means of a lever, 14, resting upon or over the projections or lugs, 17, which lever is fulcrumed at the point, 13, to the front wall of the camera, and is provided with angular ears, *b*, (shown in detail in Fig. 3) which cooperate with the lugs, 17, on the slides. A spring, *c*, tends to normally hold this lever, 14, over the lugs, 17, as shown in full lines in Fig. 1. The lever is operated by a rod, *d*, guided in the camera-cover and provided with a push-button. The spreading or opening of the slides is effected by a pressure upon this button, whereby the rod, *d*, depresses the lever, 14, and the lugs, *b*, of the latter act upon the lower lever ends, or rather the lugs, 17, of the slides, and move said slides to the opened position shown by the dotted lines. As soon as the latter have assumed this position, the ears, *b*, of the lever pass down and off from the slide lugs, in consequence of which the spring, 12, (which, during the opening of the slides, becomes stretched) is enabled to close the slide with great rapidity. As soon as the pressure upon the rod, *d*, is removed, the lever, 14, ascends to its original position by action of the spring, *c*, its ears, *b*, yieldingly gliding upward past the slide-lugs and remaining over them, as shown in Fig. 2, side view. A device for regulating the speed is not necessary in this shutter, since the characteristic construction of the same enables the operator to operate the shutter faster or slower, entirely according to his own judgment or desire by a shorter, quicker or slower pressure upon the release or push-button, as may appear necessary.

Near the release or push-button on top of the camera, is a pivoted slide, *e*, of suitable thickness (see Fig. 4), which, before releasing or setting, is pushed against the rod, *d*, to limit the stroke of the latter and thereby that of the lever, 14. Under the button on the rod, *d*, is a notch, *f*, into which the slide, *e*, is pushed when it is desired to keep the shutters open for some time, for time-exposure. Upon folding up the camera, this slide is guided in a depression or recess in the other section, 1, of the camera, and is thereby automatically restored to its former position.

In the embodiment shown in Fig. 5, a shutter, consisting of a single slide, 15, is used, which slide is pivoted at 16, and held in its closed position by means of a spring, 12. This shutter is opened by a double lever, 14, fulcrumed at the point, 13, and held in the position shown by dotted and dash lines, by means of a suitably strong spring, *c*. The shutter and lever are provided with co-operating lugs, 17 and *b*.

In order to open the shutter, the lever, 14, must be set or brought into the position indicated by the full lines, in which position its lug, *b*, stands over the shutter lug, 17. The lever, 14, is set by means of a spring-rod, *d*, which is guided in a staple or bracket and in the cover of the camera, and is provided with a push-button above the said cover. The angular end of this rod, *d*, rests normally upon or in the rabbeted or mortised end of the shorter arm of lever, 14. When the rod, *d*, is depressed, it forces the shorter arm of lever, 14, downward and the longer arm upward, until the ear, *b*, of the latter, comes to rest over the shutter-lug, 17. At the same time, the spring, *c*, is extended to the position shown in full lines. If, now, the rod, *d*, is depressed a trifle more, then the angular end of the latter slips off the shorter arm of lever, 14, releasing the spring, *c*, which causes the lever, 14, to fly back to the position shown by the dot and dash lines with great speed. The ear, *b*, then strikes upon the lug, 17, of the shutter and quickly throws the same downward into the opened position shown by the dotted lines. The lever, 14, now remains in this position, while the slide, under the action of the stretched spring, 12, is quickly restored to its closed position, passing the lever in this return movement. The speed with which this shutter operates can be regulated by stretching the spring, *c*, which moves the lever, 14, more or less. For this purpose, the spring is attached at its upper end to a band, *g*, which passes through a slot in the camera-casing, and which, toward its end, is provided with a number of holes. This band is pulled sufficiently to give the proper tension to the spring, *c*, and has one of its holes placed over a hook attached to a spring-band secured to the cover of the camera (see Fig. 8), which band will be pressed down into a recess in the cover, by the part, *l*, of the camera, when closing the same. In this way, the band will be automatically stripped off from the hook or pin of the spring-band, and the spring, *c*, will again contract.

Near the pivot, 16, of the shutter is a rod, *i*, passing through the camera-cover and provided with a push-button, by means of which the shutter can be pressed down and held in its opened position, when a time-exposure is desired. This rod, (similarly to rod, *d*, of the first embodiment,) is held in its depressed position by means of a pivoted catch, *e*, which engages a notch in the rod itself. The closing of the shutter is effected by a spring, 12,

(previously stretched in opening) as soon as the catch, *e*, is turned back.

The form shown in Fig. 7 involves a combination of the constructions of Figs. 1 and 5, in which the two shutter-slides of the first form, and the double lever, 14, the spring *c*, with regulating device, and the releasing-rod, *d*, of the latter, are employed. The mode of operation is substantially the same as in the last-described construction. The opening of the shutters for time-exposure is likewise effected by means of a rod, *i*, which, however, in this case, is bent angularly and provided with a plate, *i'*, on its end, which plate is seated loosely between the shutters in a recess of the same below the objective. When the rod, *i*, is depressed, the plate, *i'*, acts upon the inclined edges of the recess of the shutter-slides and forces the same apart. The rod can also be held in a depressed position by means of a catch, *e*.

Of course, the last-described construction for time-exposure can be replaced by any other construction answering the purpose.

Figs. 9 and 10 show, in elevation, and Fig. 11, in section, a device for fastening the negative-band to the film-roller. The latter consists, (as is evident from Fig. 9) of a cylinder, *m*, of sheet-metal or the like, which is provided with a conical slot, *k*, of suitable length. The negative-band is laid upon this slot and then a Λ -shaped clamping piece, *p*, (see Fig. 10,) made of bent sheet-metal and also conical in form, is pressed into the upper end of the slot, *k*, and then pushed down, whereby the angular portions of the device, Fig. 10, press the negative-band, *l*, Fig. 11, against the edges of the slot and thus hold the same fast. The band is removed by reversing the operation.

Instead of the finder-cover heretofore customary, I employ a blind, Fig. 12, which springs upward automatically when the camera is drawn out. The same consists of a wire-frame, *o*, which is attached by a spring-hinge or pivot to the camera, at *n*. This frame corresponds in size to the upper finder-glass and has secured to its sides a black cloth bag or hood, *q*, which incloses the latter. On drawing out the camera, this blind springs upward automatically, and, on closing, the same is depressed by the part, *l*. It is open at the top, and, when the camera is adjusted by means of the finder, serves to prevent the disturbing reflection from the finder glass to the eye.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a camera, the combination, with a pair of pivoted shutter-slides, each having a lug below the pivotal point, of a spring connecting both slides and tending to hold them in their closed position, a lever provided with ears arranged to engage the lugs on the shutter-slides, a spring-held push-rod bearing against one end of the lever, a spring attached

to the same end of the lever, a band secured to the said spring and provided with a series of holes, and a leaf-spring provided with a pin adapted to enter any desired hole in the band, said leaf-spring being arranged so as to be forced shut by the closing of the camera, substantially as set forth.

2. In a camera, the combination, with a pair of pivoted shutter-slides, each having a lug below the pivotal point, said lugs being beveled on their under sides, of a lever provided with ears arranged to engage said lugs, a spring connecting the two slides, a notched rod for time-exposure provided with a plate resting between the two shutters, a spring on the said rod, and a catch arranged to enter the notch in said rod, substantially as set forth.

3. In a camera, the combination, with a film-roller having a tapering slot, of a fastening device conical in form and having ledges, the conical portion of the fastening device entering the tapered slot and the ledges resting on the outside of the roller, substantially as set forth.

4. In a camera, the combination, with a finder-glass, of a spring-actuated frame around

the said glass, a shade-cloth attached to the frame and to the camera, and a movable section of the camera arranged to slide over the frame and depress it, substantially as set forth.

5. In a camera, the combination, with a shutter device, and a notched push-rod for operating the same, of a catch arranged to enter the notch, and a movable camera section arranged to disengage the catch from the push rod, substantially as set forth.

6. In a camera, the combination, with a shutter device, and a spring for operating the same, of a strap provided with a series of holes and attached to the spring, a leaf spring having a pin arranged to enter any one of the holes in the strap, and a movable camera section arranged to depress the leaf spring and force its pin from the strap, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

ALOIS DELUG.

Witnesses:

EMIL HENZEL,
ALBERT WEICKMANN.